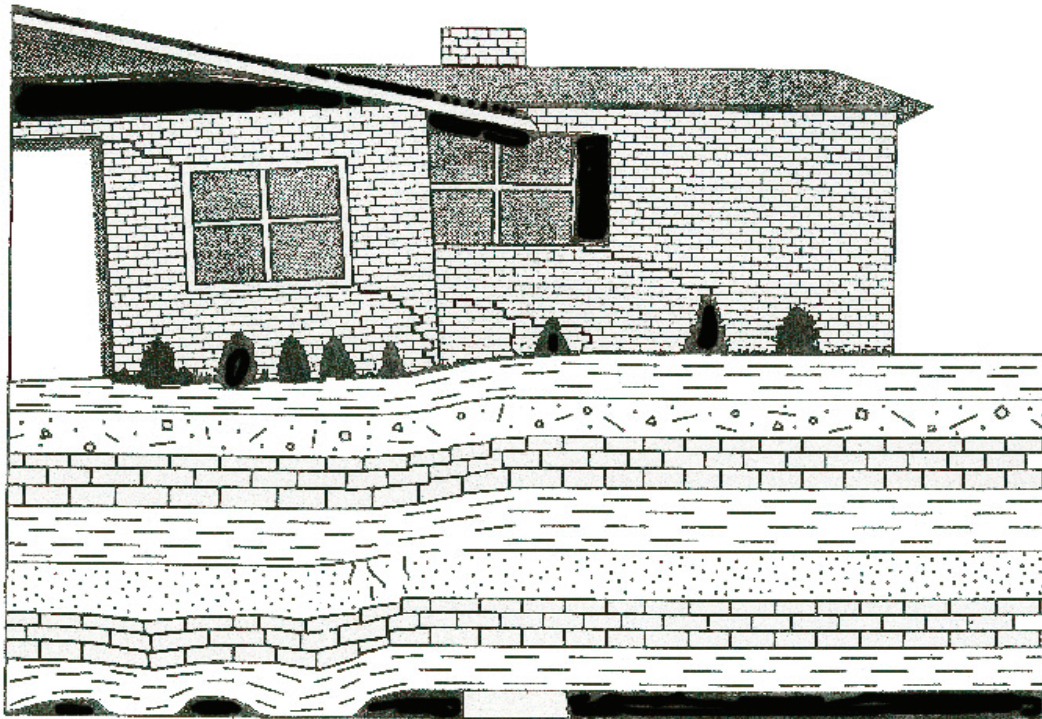


# Insuring Your Property Against Underground Mine Collapse

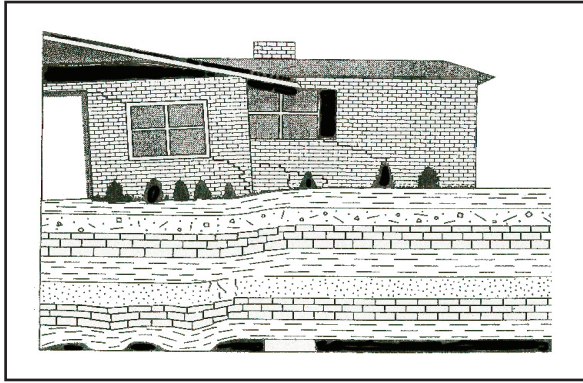


Kentucky Mine Subsidence Insurance Fund



Kentucky Mine Subsidence Insurance Fund  
Kentucky Department of Insurance  
P.O. Box 517  
Frankfort, KY 40602-0517

*Illustrations on Pages 2-3 courtesy of the Illinois Mine Subsidence Insurance Fund.*



Mine subsidence -- collapse of underground coal mines resulting in damage to a surface structure.

## Mine Subsidence Insurance Fund

### History of the Fund

In 1984 the federal government appropriated funds to coal mining states so that programs could be developed to insure property owners against coal mine subsidence. During that same year, Sen. Ken Gibson of Madisonville sponsored Senate Bill 84, establishing the Kentucky Mine Subsidence Insurance Fund (KMSIF). After a two-year period of planning and development, the KMSIF began operations on Nov. 1, 1986. Insurance companies could begin offering coverage to families and businesses whose property was at risk of coal mine subsidence damage.

### Fund Covers Damage Due to Mine Collapse

A typical homeowners insurance policy *does not* provide coverage for damage originating from earth movement, settling, shrinking, bulging or expansion of soil, including the resultant cracking of pavements, patios, foundations, walls, floors, roofs or ceilings.

Therefore, without KMSIF, a property owner suffering a loss from underground coal mine subsidence would not be insured and would have to seek legal remedy against the coal mine owner(s). Unfortunately, many underground mine owners have moved out of state, gone out of business, or can't be found, so property owners have no course of action to recover for their damages. KMSIF allows for property owners to recover damages without spending their time and money on legal action.

Stabilizing the ground is the main focus of the Federal Office of Surface Mining and Kentucky's Abandoned Mine Lands programs dealing with all aspects of coal mining. These agencies cannot address damaged structures. Therefore, KMSIF fills the void regarding structural damage resulting from the collapsing of underground coal mines.

### “Mine Subsidence” Defined

KMSIF is intended to offer insurance against the peril of coal mine subsidence. The statutory definition of *mine subsidence* is “the collapse of underground coal mines resulting in direct damage to a structure. It does not include loss caused by earthquake, landslide, water seepage, volcanic eruption or collapse of storm and sewer drains.” Coal mine subsidence means the collapse of an underground coal mine resulting in damage to a surface structure.

Coal mine subsidence normally begins when a support pillar collapses or part of the mine roof gives way. The subsidence can occur immediately or many years after the mining has been completed, depending on the type of mining and the geological framework of the area in question. Other factors involved in the collapse or failure of a coal mine are the size and type of the supports, the makeup of the overburden (soil and rock over the coal seam) and the type of rock below the coal seam.

By definition coal mine subsidence *does not* include damage from blasting or the effects of strip (surface) mining. The Fund only covers damages resulting DIRECTLY from the collapse of an underground coal mine. The current limit of insurance coverage under the Mine Subsidence Fund is \$100,000 per structure.

### Pre-existing Damage Not Covered

Insurance policies are date driven/time sensitive. If coal mine subsidence damage has taken place before creation of KMSIF (1987) or before insurance coverage became effective on a structure, then no coverage can be provided for those damages.

### Types of Coal Mine Subsidence

**Sags (depressions)** — Sag coal mine subsidence occurs as a gentle depression over a large area. Sags can form when a large area of coal was mined, or where several adjacent pillars have failed simultaneously.

Over time, the weight of the overburden overcomes the strength of the remaining pillars. A small or weak pillar may fail (collapse) suddenly. The weight carried by the pillar is then transferred to adjacent pillars. This sudden change can cause several pillars to fail, causing a chain reaction until a new equilibrium is reached.

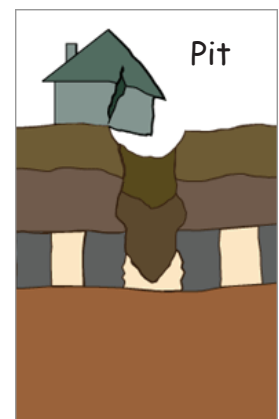
As the roof sags into the mine void, the ground surface will sag correspondingly. As the ground surface sags, it pulls away from the edge of the trough and creates tension cracks around the perimeter. Subsequently, the ground is compressed in the center of the trough and a small ridge can form. The surface tilts where the ground curves into the trough. These movements result in horizontal tension, compression and tilting of the ground surface.

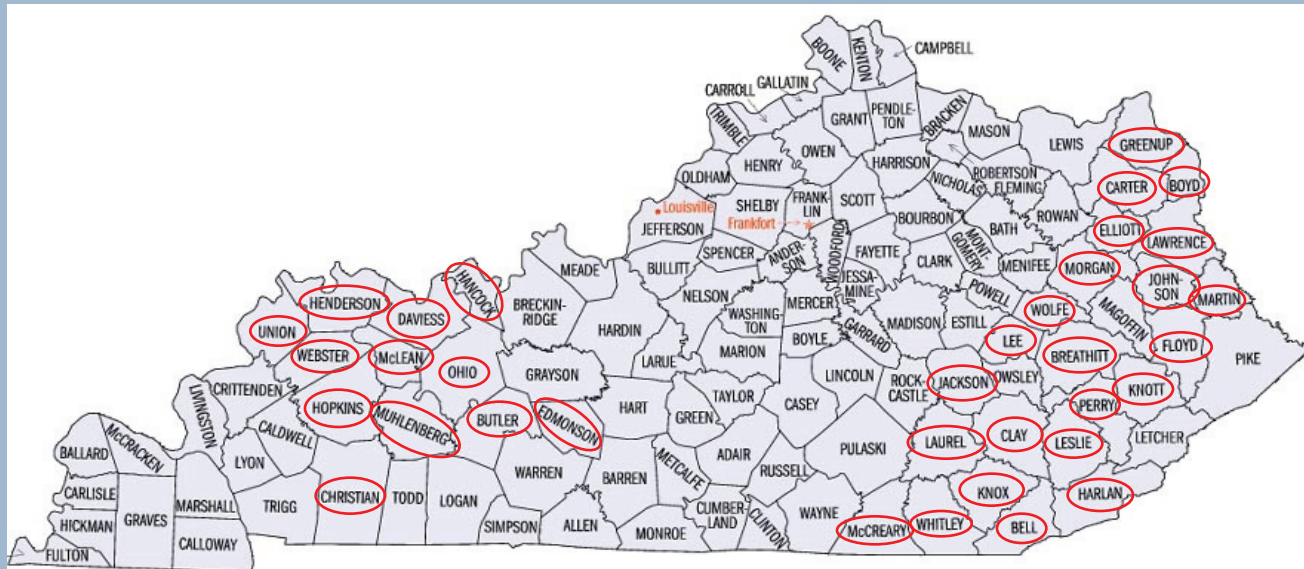


The area affected by a collapsing underground coal mine can be larger on the surface than below ground. This phenomenon is known as the *angle of draw*. The angle of draw is normally dictated by the thickness of the seam of coal mined and the distance between the surface and the mine. The deeper the coal mine, the larger the area of surface disturbance. However, the magnitude of the subsidence is less. The closer the coal mine is to the surface the greater the amount of sag subsidence (depth) but the surface area affected is smaller.

This shallow coal mining typically leads to another type of subsidence known as *pit* subsidence.

**Pits** — Pits can form over shallow coal mines where the mining is less than 100 feet deep. They frequently occur where the depth to the mine void is less than 50 feet. Once settlement has reached the surface, pits usually develop over a few days and represent mostly vertical movement. The depth of pits can vary from a few inches up to eight feet or more. The size can be two to 40 feet in diameter.





## Participating Counties in Kentucky

The mine subsidence endorsement is automatically added onto insurance policies in the counties whose fiscal courts have voted to be included in the program. The following counties are participating in the KMSIF: Bell, Boyd, Breathitt, Butler, Carter, Christian, Clay, Daviess, Edmonson, Elliott, Floyd, Greenup, Hancock, Harlan, Henderson, Hopkins, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Martin, McCreary, McLean, Morgan, Muhlenberg, Ohio, Perry, Union, Webster, Whitley and Wolfe.



*Longwall* — Longwall mining involves the total removal of coal from a predetermined area. Nothing is left to support the roof and overburden so subsidence is almost immediate and complete. Unlike traditional room-and-pillar mining,\* once a longwall mine or panel has subsided the vertical movement will cease as the void has been filled.

\* A method of underground mining in which approximately half of the coal is left in place to help support the mine roof and control the flow of air in the active mining area. Large “pillars” are left while “rooms” of coal are extracted.



## Common Conditions/Causes Mistaken for Subsidence

*Swelling and shrinking of moisture sensitive soils* — All soils are sensitive to shrinking and swelling with changes in moisture content to some degree. However, some soils are more sensitive to changes than others. When excessive moisture or extreme drought conditions exist, foundations can be impacted negatively.



Proper guttering and down spouts that direct water away from the foundation are extremely important. Water that is not taken away from any part of the foundation can saturate the soils around the foundation putting additional pressure on that portion of the foundation. Over time this shrinking and swelling of soils can crack a foundation. In addition, standing water or excessive moisture in a crawl space can weaken soil support for foundations and center beams that will affect structural integrity and appearance.

*Construction Methods* — As mentioned above, proper support for the foundation is extremely important to the stability of a structure and that includes construction techniques. Building methods such as improper footing depth, step footing and building on improperly compacted back-filled soil can cause major problems for a structure.

Building on back-fill soil with poor compaction can allow future settlement of the foundation causing damage to the foundation and the structure. Step footings are prone to cracks beginning at the junction and weakest area of the footing and can radiate into the foundation causing cracks or separation.

For structures with crawl spaces, the depth of the foundation footing is very important. The Kentucky Building Code recommends that the depth of foundation footings be below the frost line or minimum depth of 24 inches. Footings not below the frost line invite freeze-thaw damage -- expansion of the damp soil putting pressure on the foundation when freezing and the release of that pressure when thawing occurs.

## Typical Signs of Active Coal mine Subsidence

If active coal mine subsidence is occurring, **several** of the following problems are likely to emerge within a few days:

- 1) Cracks **suddenly** appear in the foundation, walls or ceilings, and continue to grow.
- 2) Doors and windows stick, jam or break.
- 3) Sections of the structure tilt, and doors swing open or closed.
- 4) Water lines **suddenly** break or pull apart.
- 5) Cracks **suddenly** develop in the ground around the property.
- 6) Popping and cracking sounds **suddenly** are heard inside the structure.

## Claims Reporting and Investigation

When property owners suspect that coal mine subsidence is affecting their property, they should immediately get in touch with their insurance agent to report their claim. This is the same method of claim reporting as any other insurance claim (wind, fire, etc.). The insurance company handles the reported claim with a staff or independent adjuster, again, just like a typical wind or fire claim. Once the company investigation is complete, if the adjuster is not sure of the cause or believes coal mine subsidence is affecting the property, the claim is turned into KMSIF.



KMSIF assigns the claim to specially trained adjusters to investigate the property. These adjusters closely observe and investigate the property looking for evidence of active coal mine subsidence.

If the adjuster is able to determine factors other than coal mine subsidence are affecting the home and causing damage, the adjuster will explain these findings to the property owner. A report is submitted to KMSIF with the findings that no active coal mine subsidence is affecting the property. The report then is forwarded to the insurance company.

However, if the adjuster suspects active coal mine subsidence or is not 100 percent certain about what is causing damage, the adjuster will recommend that geotechnical engineers be contacted for further investigation.

KMSIF has under contract geotechnical engineers and geologists specially trained to investigate and monitor coal mine subsidence claims. These experts will research known mining history and the area geological information, visit the insured property and check the surrounding vicinity for signs of active coal mine subsidence.

In most claims a precision level survey will be installed to monitor exactly how the property is moving. This survey line will measure movements smaller than the thickness of a dime. Active coal mine subsidence will normally continue to move in a downward fashion for 12 to 24 months after it first begins. Once the coal mine subsidence has ceased, the precise level survey will show a return to normal seasonal movements. If active coal mine subsidence is not affecting the property, the precise level survey line will show normal soils-related movement — slightly down in the dry season and slightly up during the wetter season.

A mine subsidence investigation may take much longer to determine the cause of movement than typical insurance claims. When the geotechnical engineers set up a precise level survey line, they need to wait approximately 90 days before returning to measure the amount of movement. Depending on the time of year when an investigation begins, they may have to revisit the property more than once to determine exactly what is occurring and submit a cause and origin report.

### **Claim Payments and Time Involved**

When active coal mine subsidence is determined to be affecting a property, the geotechnical engineers will continue to monitor the movement until the coal mine subsidence movements have ceased. As mentioned previously, this movement can last as long as 12-24 months.

In the meantime, KMSIF adjusters will return to the property and prepare an estimate of damages. Once completed, the actual cash value (ACV) amount of the estimate, which involves minor depreciation, will be paid to the insured under the insurance policy terms. Repairs *are not* recommended until the active coal mine subsidence movement has ceased.

When the movement has ceased, the adjuster will return to determine if further damage has occurred. If additional damage has occurred, a new estimate will be prepared for a supplemental payment for the new damages. Again, this is an actual cash value payment. After permanent repairs have been completed and inspected by a KMSIF adjuster, any difference between the ACV payment(s) and the replacement cost estimate will be paid to the insured.

## Administration & Contacts

The KMSIF is administered by the Kentucky Department of Insurance. Questions, further information requests or comments may be addressed to the Kentucky Mine Subsidence Insurance Fund, P.O. Box 517, Frankfort, KY 40602-0517, 502-564-6083 or toll free 800-595-6053. The TDD line for the deaf or hearing-impaired is 800-648-6056.



**Kentucky Public Protection Cabinet**  
**Department of Insurance**  
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**Toll free: 800-595-6053 TDD: 800-648-6056**  
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**July 2008**

